Patent
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(prev 265/082)

AMENDMENTS TO THE CLAIMS:

The listing of claims shown below will replace all prior versions, and listings, of claims in the Application:

1. (Amended) A method for separating particles comprising the steps of:

flowing the particles within a first constrained path, the first constrained path having an input and an output, and a sorting region, the sorting region coupling to a second constrained path, the second constrained path including an output,

illuminating the sorting region with a moving optical gradient,

characterized in that certain of the particles flow in a laminar manner between the first inlet and the output of the first constrained path, and

selected particles are diverted from the first constrained path to the second constrained path under the force of the moving optical gradient based on the dielectric constants of the particles.

2. (Original) The method of claim 1 wherein the constrained path is a channel.

3. (Original) The method of claim 1 wherein the constrained path is a plane.

4. (Original) The method of claim 1 wherein the sorting region comprises a T intersection.

5. (Original) The method of claim 1 wherein the sorting region comprises a H intersection.

6. (Original) The method of claim 1 wherein the sorting region comprises a X intersection.

7. (Original) The method of claim 1 wherein the sorting region comprises a Y intersection.

8. (Original) The method of claim 2 wherein the channel is a microchannel.

9. (Original) The method of claim 8 wherein the microchannel is formed in a substrate.

10. (Original) The method of claim 8 wherein the microchannel is formed on a substrate.

11-24. (Cancelled)

25. (Amended) A method of separating particles comprising the steps of:

providing a substrate having a main channel coupled to an output channel and at least one sorting channel, the main channel including a sorting region;

providing a light source, the light source producing a moving optical gradient in the sorting region of the main channel;

flowing a fluidic medium within the main channel, the fluidic medium containing particles; and

wherein a portion of the particles flow from the main channel to the outlet channel and a selected portion of the particles are diverted to the at least one sorting channel by the moving optical gradient based on the dielectric constants of the particles.

26. (New) The method of claim 25, wherein the moving optical gradient does not fully trap the particles.

27. (New) The method of claim 25, wherein the light source is a laser.

28. (New) The method of claim 25, wherein the particles are cells.

29. (Cancelled)

30. (New) The method of claim 25, wherein the sorting region comprises a T intersection.

31. (New) The method of claim 25, wherein the sorting region comprises a H intersection.

32. (New) The method of claim 25, wherein the sorting region comprises a X intersection.

33. (New) The method of claim 25, wherein the sorting region comprises a Y intersection.

34. (New) The method of claim 25, wherein the channel is a microchannel.

35. (New) The method of claim 34, wherein the microchannel is formed in a substrate.

36. (New) The method of claim 34, wherein the microchannel is formed on a substrate.

37. (New) A method of separating particles comprising the steps of:

providing a substrate having a main channel coupled to a first output channel and a second output channel, the main channel including a sorting region;

providing a light source, the light source producing a moving optical gradient in the sorting region of the main channel;

flowing a fluidic medium within the main channel, the fluidic medium containing particles; and

wherein a portion of the particles are diverted to the first output channel by the moving optical gradient and a portion of the particles are diverted to the second output channel by the moving optical gradient, the diversion of the particles being based on the dielectric constants of the particles.

38. (New) The method of claim 37 wherein the particles are cells.

39. (New) The method of claim 37, wherein the moving optical gradient does not trap the particles.

40. (New) The method of claim 37, wherein the light source is a laser.

41. (New) The method of claim 37, wherein the sorting region comprises a T intersection.

42. (New) The method of claim 37, wherein the sorting region comprises a H intersection.

43. (New) The method of claim 37, wherein the sorting region comprises a X intersection.

44. (New) The method of claim 37, wherein the sorting region comprises a Y intersection.

45. (New) The method of claim 37, wherein the channel is a microchannel.

46. (New) The method of claim 45, wherein the microchannel is formed in a substrate.

47. (New) The method of claim 45, wherein the microchannel is formed on a substrate.

48. (New) The method of claim 45, wherein the substrate is optically transparent.